EXHIBIT 3

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

FRANKLIN BUONO, *Plaintiff,* v. POSEIDON AIR SYSTEMS, VICTORY AUTO STORE, INC., VICTORY AUTO STORES, INC. d/b/a POSEIDON AIR SYSTEMS, WORTHINGTON INDUSTRIES, INC., AND TYCO FIRE PRODUCTS LP, *Defendants.*	Civil Action No. 1:17-cv-05915 (PMH)
TYCO FIRE PRODUCTS LP, *Third-Party Plaintiff,* v. OPRANDY'S FIRE & SAFETY INC., *Third-Party Defendant.*	**DECLARATION OF ERIK W. CHRISTIANSEN**

I, Erik W. Christiansen, hereby declare as follows:

1. Exponent was retained by counsel for Tyco Fire Products, LP, to conduct an investigation of the rupture of the fire suppression test tank that occurred on February 12, 2016, at Oprandy's Fire and Safety Equipment, Inc., in Middletown, New York.

2. In connection with Exponent's investigation, I provided a report entitled "Buono v. Poseidon Air Systems et al.: Engineering Investigation of a Ruptured Fire Suppression Test Tank Cylinder" on April 16, 2020. A true and correct copy of my report is attached hereto as Exhibit A.

3. The contents of this report are true and correct to the best of my knowledge and belief.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed on this 1 day of February, 2021, at Los Angeles, CA.

Erik W. Christiansen

EXHIBIT A

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

FRANKLIN BUONO, *Plaintiff,* v. POSEIDON AIR SYSTEMS, VICTORY AUTO STORE, INC., VICTORY AUTO STORES, INC. d/b/a POSEIDON AIR SYSTEMS, WORTHINGTON INDUSTRIES, INC., AND TYCO FIRE PRODUCTS LP, *Defendants.*	:	Civil Action No. 1:17-cv-05915 (NSR) (LMS) **EXPERT REPORT OF ERIK W. CHRISTIANSEN**
TYCO FIRE PRODUCTS LP, *Third-Party Plaintiff,* v. OPRANDY'S FIRE & SAFETY INC., *Third-Party Defendant.*	:	

Exponent®

Buono v Poseidon Air Systems et al.: Engineering Investigation of a Ruptured Fire Suppression Test Tank Cylinder

Exponent®
Engineering P.C.

Buono v Poseidon Air Systems et al.: Engineering Investigation of a Ruptured Fire Suppression Test Tank Cylinder

Prepared for

James Kirkpatrick, Esq.
Williams & Connolly L.L.P
725 12th St NW
Washington, DC 20005

Prepared by

Erik Christiansen
Exponent Engineering, P.C.
5401 McConnell Ave.
Los Angeles CA 90066

April 16, 2020

1804860.EX1 – 6085

Contents

List of Figures

Acronyms and Abbreviations

ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
CT Scan	Computerized Tomography Scan
DOT	U.S. Department of Transportation
FOIA	Freedom of Information Act
NFPA	National Fire Protection Association
NYSP	New York State Police
OSHA	Occupational Health and Safety Administration, U.S. Department of Labor
PSI	Pressure, Pounds per Square Inch
SCBA	Self-Contained Breathing Apparatus

Limitations

At the request of counsel for Johnson Controls, Inc., Exponent Engineering, P.C. ("Exponent") conducted an investigation of the rupture of a fire suppression test tank that occurred on February 12, 2016 at Oprandy's Fire and Safety Equipment, Inc. in Middletown, NY. Exponent investigated specific issues relevant to this incident as requested by Williams and Connolly L.L.P. The scope of services performed during this investigation may not adequately address the needs of other users of this report, and any re-use of this report or its findings, conclusions, or recommendations presented herein are at the sole risk of the user. The opinions and comments formulated during this assessment are based on observations and information available at the time of the investigation. If new information becomes available, the opinions contained in this report may be changed, altered, or supplemented. No guarantee or warranty as to future life or performance of any reviewed condition is expressed or implied.

The findings presented herein are made to a reasonable degree of engineering and scientific certainty. We have made every effort to accurately and completely investigate all areas of concern identified during our investigation, which is ongoing. If new data becomes available or there are perceived omissions or misstatements in this report regarding any aspect of those conditions, we ask that they be brought to our attention as soon as possible so that we have the opportunity to fully address them.

If asked, I will be prepared to provide a basic tutorial on the background concepts and terms used in this report. I may use demonstrative exhibits during my testimony, and reserve any right I have to do so.

Executive Summary

Exponent conducted an investigation of the rupture of a fire suppression test tank that occurred on February 12, 2016 at Oprandy's Fire and Safety Equipment, Inc. (Oprandy's) in Middletown, NY. As part of our investigation, Exponent reviewed reports, photographs, depositions and other materials related to the incident. Exponent also conducted an examination of the incident site and equipment, and performed testing related to the cause of the incident.

The incident cylinder was rated for a maximum service pressure of 225 psi. Occupational Safety and Health Administration (OSHA) officials had previously determined that the incident cylinder failed due to over-pressurization during a filling operation. An analysis by Exponent, (presented in a separate report by Brad James, Ph.D., P.E., FASM) reached the same conclusion.

To determine why the over-pressurization occurred, Exponent conducted an investigation of the incident pressure regulator associated with the Poseidon cascade system. The function of a pressure regulator is to reduce the pressure from a high-pressure source to a pressure that is suitable for the end system. Exponent performed a computerized tomography (CT) scan of the incident regulator which revealed that the pressure regulator was undamaged and fully engaged at or near the maximum open position. In this position, the regulator would not reduce pressure at all.

Exponent conducted a test to determine the pressure setting of the incident regulator. Pressure testing on the incident regulator demonstrated that the incident regulator did not provide any inlet-to-outlet pressure reduction, as tested up to an inlet pressure of 6,000 psi. The test results confirm that the incident regulator was in a full open position, as indicated by the CT scan images. I therefore conclude that the over-pressurization event of the incident cylinder was caused by using a high pressure (potentially 5,000 psi or greater) cascade system with a fully opened regulator to fill the incident cylinder. Although the incident pressures within the high-pressure gas cylinders that comprise the cascade system were not recorded, it is reasonable that they were on the order of 5000 psi, because the system is used to fill SCBA tanks, which are rated for similar pressures. The fill system at Oprandy's lacked any safeguards against over-

pressurization, such as a safety relief device, and consequently allowed over-pressurization by simply turning the knob on the incident pressure regulator.

Note that this Executive Summary does not contain all of Exponent's technical evaluations, analyses, conclusions, and recommendations. Hence, the main body of this report is at all times the controlling document.

Qualifications

I am a Principal Engineer in the Thermal Sciences Practice at Exponent, Inc. I have a Bachelor of Engineering degree from the Mechanical Engineering Department at the Cooper Union for the Advancement of Science and Art, and a Doctor of Philosophy degree from the Mechanical and Aerospace Department at Princeton University. I have over 18 years of experience in the investigation and failure analysis of fires and explosions involving compressed gases and their containers. I am a member of a number of technical committees, including the National Fire Protection Association (NFPA) committee on Industrial and Medical Gases, which is responsible for codes and standards related to the safe handling of compressed gases.

A complete list of my experience and qualifications is included in my curriculum vitae, which is attached as Appendix B.

Introduction and Background

Exponent, Engineering, P.C. was retained by Williams and Connolly L.L.P to conduct an engineering investigation of the rupture of a fire suppression test tank. The incident occurred on February 12, 2016 at Oprandy's Fire and Safety Equipment, Inc. (Oprandy's) in Middletown, NY. A fire suppression test tank was being filled with compressed air when the cylinder component ruptured, injuring two employees. I, along with others at Exponent, reviewed incident reports, photographs, depositions, literature, and documents related to the incident, attended an examination of the incident site, and performed testing to determine the cylinder rupture scenario. Exponent also concurrently performed metallurgical analysis related to equipment involved in the incident, the results of which are presented in a separate report by Brad A. James, Ph.D., P.E., FASM.

Background

Compressed Gas and Gas Cylinders

A compressed gas is a fluid which is entirely gaseous and occupies the space of enclosure, exerting on the packaging an absolute pressure of 40.6 psi absolute or greater at 68 °F.[1,2] A cylinder is a pressure vessel with a circular cross section designed for the storage of high pressure compressed gas,[3] such as the incident test tank. Gas cylinders are generally rated for a specific maximum service or operating pressure, based on the material properties and construction of the vessel. This maximum allowable service pressure is less than the vessel burst or rupture pressure, in which the vessel would mechanically fail. Due to the possibility of such a mechanical failure, the United States Department of Labor considers stored compressed gas to be a source of hazardous energy, establishes the responsibility of an employer to protect

1 CGA C-7 Guide to Classification and Labeling of Compressed Gases, Section 4.2.9, Edition 2014.

2 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 3.2.4.2, Edition 2015.

3 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 3.2.10, Edition 2015.

workers from hazardous energy, and warns that workers may be seriously injured or killed if hazardous energy is not properly controlled.[4]

Due to the hazards associated with handling compressed gas cylinders, safety recommendations have been established by organizations such as the Department of Transportation (DOT) and the Compressed Gas Association (CGA) to represent the state of care of the industry. The processes of transferring compressed gases from one container to another in order to pressurize or recharge a cylinder is called transfilling.[5] The CGA urges that the process of cylinder filling should be deferred to professional gas companies[6] and persons trained in the safe handling and use of compressed gas containers.[7] Guidelines also establish that it is unsafe to transfill a cylinder without system protections when the cylinder has a pressure rating less than the compressed gas supply source.[8]

Incident

On February 12, 2016, Franklin Buono and Christopher Foust were employed as service technicians at Oprandy's Fire and Safety Equipment, Inc. in Middletown, NY, which was owned and operated by Brian E. Scott. On the morning of the incident, Mr. Buono and Mr. Foust were transfilling (or "refilling" or "recharging") a fire suppression test tank with compressed air. The test tank was intended to be used later in the day for an inspection test (also referred to as a "balloon test") of a restaurant fire suppression system.[9,10] Mr. Foust placed the cylinder on the ground and connected it to a Poseidon cascade high-pressure gas cylinder storage system, which consisted of four high-pressure cylinders, a pressure regulator, and an air compressor (the compressor was inoperative on the day of the incident).[11] The cascade system

4 29 CFR 1910.147 The Control of Hazardous Energy (Lockout/Tagout).

5 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 3.2.30, Edition 2015.

6 CGA SP-H, Revision 2.

7 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 5.1, Edition 2015.

8 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 5.9.9, Edition 2015.

9 Deposition of Brian E. Scott, May 2, 2018, pg. 127.

10 US Department of Labor- OSHA Statement by Christopher Foust, August 9, 2016, pg. 3.

11 Deposition of Brian E. Scott, May 2, 2018, pg. 138.

was normally used for filling Self Contained Breathing Apparatus (SCBA) bottles, which would typically be filled to 2,000 to 4,500 psi.[12]

The delivery pressure of the cascade system to the cylinder(s) to be refilled is controlled by the pressure regulator, which is adjusted by hand. After connecting the fire suppression test tank to the outlet of the cascade system pressure regulator, Mr. Foust attempted to fill the cylinder with compressed air. During this attempt, he did not observe any signs the cylinder was filling. Mr. Foust did not hear the sound of gas flowing into the cylinder and he did not see the indicator needle of the pressure gauge on the fire suppression test tank move.[13] Attempting to start the flow of gas, Mr. Foust manipulated a valve or valves on the cascade/cylinder system. During this process, the cylinder ruptured, injuring Mr. Buono and Mr. Foust.[14] The projectile sections of the ruptured cylinder hit other full fire extinguishers stored in the vicinity, causing them to expel their chemicals in the room.[15]

OSHA Investigation

The Occupational Health and Safety Administration (OSHA) performed an inspection of Oprandy's Fire and Safety Equipment as described in the Inspection Report,[16] in response to the incident. OSHA inspectors arrived in the afternoon on February 12, 2016 and found the scene relatively undisturbed as shown in Figure 1. The OSHA inspection was performed jointly with New York State Police (NYSP) Troopers.

Remnants of the cylinder associated with the incident and related valve assemblies were sent to OSHA's Salt Lake Technical Center (SLTC) for evaluation, as described in Evaluation of Ruptured Fire Suppression Tank.[17] OSHA concluded that the incident resulted from a violent explosion which occurred due to over-pressurization of the cylinder, in excess of the cylinder

---

[12] Deposition of Brian E. Scott, May 2, 2018, pg. 142-143.

[13] Deposition of Franklin Buono, April 30, 2018, pg. 70.

[14] U.S. Department of Labor- OSHA Statement by Franklin Buono, May 23, 2016, pg. 3.

[15] U.S. Department of Labor- OSHA Statement by Christopher Foust, August 9, 2016, pg. 4.

[16] U.S. Department of Labor- OSHA Inspection Report, Inspection #1125359, June 9, 2016.

[17] U.S. Department of Labor- OSHA Evaluation of Ruptured Fire Suppression Tank, May 5, 2016.

burst pressure which was calculated to be approximately 1,200 psi. OSHA concluded that, when the employees determined the cylinder was initially not filling, Mr. Foust performed an unknown sequence of valve and regulator manipulation, which likely led to the over-pressurization. We note that neither OSHA nor representatives for Oprandy's Fire and Safety Equipment documented the gas outlet pressure from the cascade system.

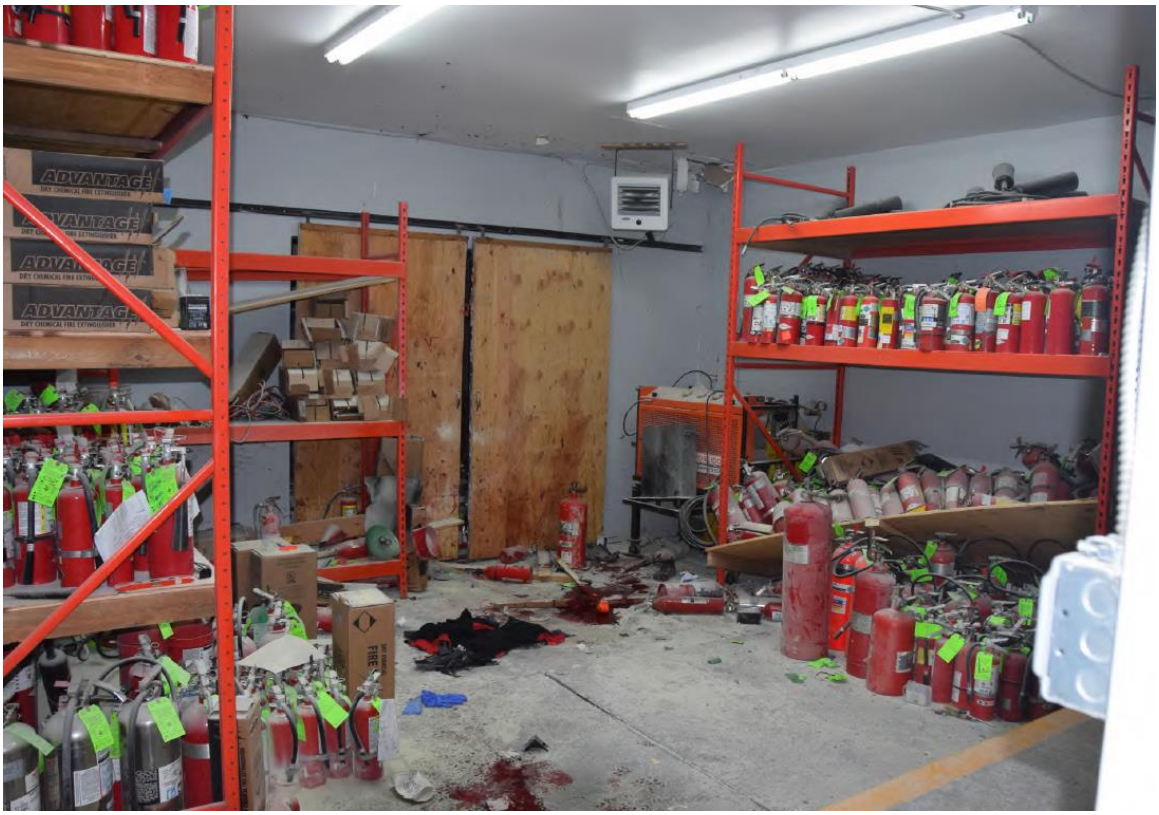

Figure 1. NYSP photo of incident scene taken 2/12/16. Poseidon compressor is located in the right corner of the room. Overpressure rupture originated directly in front of the compressor.

Analysis and Discussion

Site Inspection

Exponent conduced an inspection of the incident location, Oprandy's Fire and Safety Equipment, in Middletown, NY on August 14, 2018. During the site inspection, the explosion origin location and the equipment used by Mr. Foust and Mr. Buono on the day of the incident were inspected. The cascade system and compressor had been removed from the incident room and made available for non-destructive examination. Figure 2 shows the incident location as documented on August 14, 2018. The Poseidon air compressor is shown in Figure 3. A manual for the compressor and cascade system was requested; however, Oprandy's has been unable produce such a document. Figure 4 shows the Poseidon cascade system, including the four gas cylinders, high pressure lines, and the pressure regulator.

During inspection of the cascade system high pressure gas cylinders, it became apparent that the cylinders had been hydrostatically tested since the incident occurred. Figure 5 shows the markings "2 $^{AO}/_{56}$ 18" stamped onto the side of one of the Poseidon cylinders. This indicates the cylinder was hydrostatically tested in February 2018, as certified by facility or inspector identified as "AO56." All four incident cascade cylinders had identical stamps. Hydrostatic testing is a common procedure for pressurized components, in which liquid (such as water) is used to bring the unit to a specified pressure in a safe manner. Therefore, the compressed air pressure in the bottles on the day of the incident must have been released after the incident to perform the hydrostatic test. This precluded Exponent from determining the pressure in the high-pressure gas cylinders.

The manually adjustable incident pressure regulator seen in Figure 6 was inspected, and it was observed that the gauge which indicates the regulator inlet pressure was missing a faceplate. The needle on the outlet pressure gauge was broken as well. The incident regulator had no label that would identify the manufacturer or specifications; the only marking found was the number "59" stamped on the back. The engagement (or "travel length") of the adjustment knob relative to the lip on the regulator body was measured to be 0.255-0.280 inches. The adjustment knob is

attached to an adjustment screw which controls the regulator outlet pressure. The position of the adjustment knob thus provides information on what pressure may have been delivered to the incident cylinder.

To preserve the position of the pressure regulator adjustment knob, several pieces of tape were placed across the face of the knob, extending down to the regulator body, as seen in Figure 7. A second pressure-reducing regulator (known forward as the "exemplar regulator"), similar in appearance to the incident regulator, was located at Oprandy's. The exemplar regulator was manufactured by Aqua Environment, model 415-5000, whose specifications indicate a design for up to 6,000 psi inlet pressure and 0-5,000 psi outlet pressure. The incident regulator, incident valves and lines, and incident cascade cylinders were collected on May 9, 2019 as evidence for off-site examination and testing. On the day of evidence collection, the incident cascade cylinders and incident regulator were found to have been moved to the middle of the shop floor at Oprandy's. In addition, Oprandy's refused to allow parties to remove the Poseidon air compressor to determine the maximum outlet pressure it could generate. They also declined to provide the exemplar regulator at that time, although it was made available for subsequent testing.

Figure 2. Photograph of shop area at Oprandy's Fire and Safety on August 14, 2018.

Figure 3. Poseidon air compressor on August 14, 2018.

Figure 4. Photograph of Poseidon cascade system on August 14, 2018.

Figure 5. Hydrostatic test date stamp on cascade system bottles.

Figure 6. Photograph of incident pressure regulator on August 14, 2018.

Figure 7. Photograph of incident regulator tape and signature.

Figure 8. Photograph of evidence collected on May 9, 2019.

Evidence Exam

Incident Cylinder

The fragments of the incident cylinder and associated hardware shown in Figure 9 were initially collected as evidence by OSHA from Oprandy's Fire and Safety.[18] These cylinder fragments, cylinder pressure gauge, ¼ turn ball valve and attachments, and valve nipple assembly were inspected by Brad James, Ph.D., P.E., on April 16, 2018. The cylinder fragments consisted of a portion of the main cylinder with top attached, the cylinder bottom, and four cut fragments. Identifying markings on the incident cylinder included information on its manufacture date, manufacture location, and maximum working pressure of 225 psi. The marking and labelling on the cylinder are consistent with DOT regulations for the manufacture of pressure cylinders. Labelling related to the contents of the cylinder would be the responsibility of the party performing the filling operation, in accordance with CGA C-7.[19,20]

A detailed discussion of the cylinder can be found in a concurrent report authored by Brad James, Ph.D., P.E. Dr. James determined that the failure mechanism of the cylinder was due to over-pressurization, causing the cylinder to rupture.

[18] U.S. Department of Labor- OSHA Evaluation of Ruptured Fire Suppression Tank, May 5, 2016.

[19] CGA C-7: Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers, Section 1.2, 1992 Edition.

[20] CGA C-7: Guide to Classification and Labeling of Compressed Gases, Section 3, 2014 Edition.

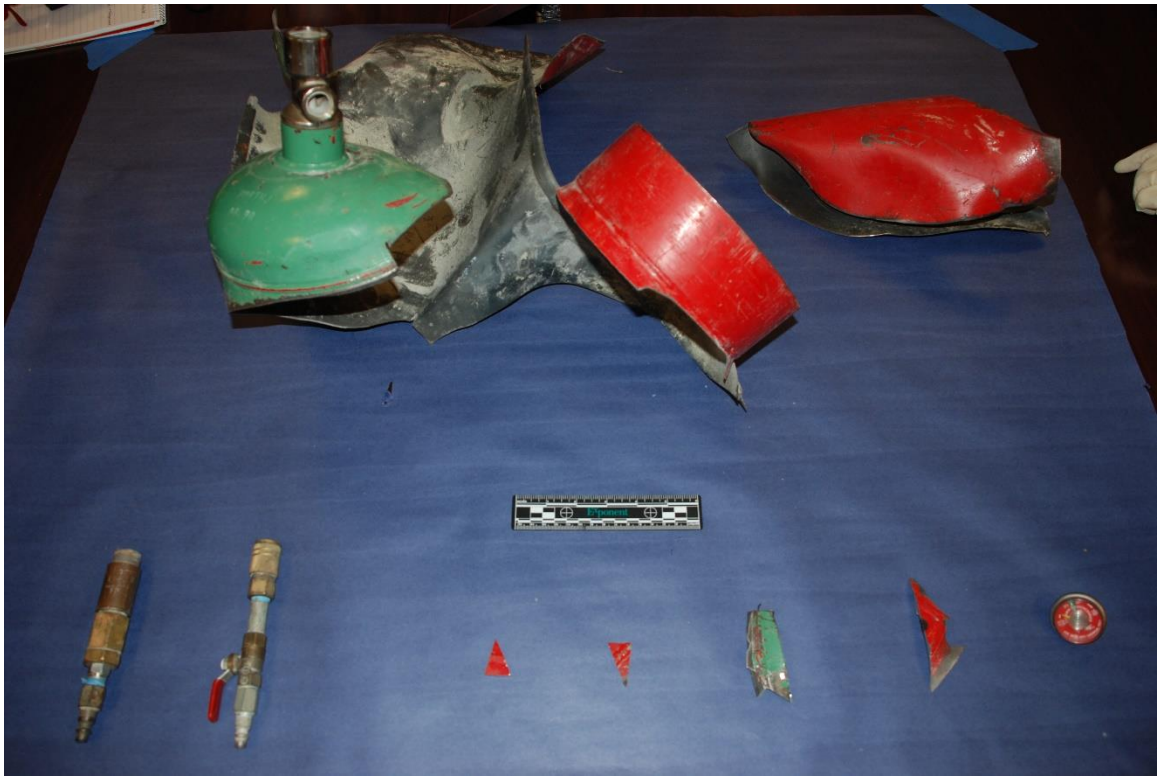

Figure 9. Incident cylinder and associated hardware.

Pressure Regulators

To investigate the source of the over-pressure event which led to the cylinder rupture, Exponent considered the incident pressure regulator as a potential root cause. The incident regulator had not been serviced, repaired, or calibrated since 2000 when Oprandy's purchased the regulator as part of the cascade system from Howells Fire District.[21,22]

The regulator in question is designed to be attached to a high pressure gas cylinder to reduce the pressure on the outlet side of the regulator. An adjustment knob allows a user to increase the pre-load force on a spring within the regulator, which in turn increases the outlet pressure. Turning the knob clockwise increases the outlet pressure, while turning it counter-clockwise has the opposite effect.

[21] Deposition of Brian E. Scott, May 2, 2018, pg. 38.

[22] Deposition of Brian E. Scott, May 2, 2018, pg. 31-32.

Exponent examined the incident pressure regulator via a computerized tomography scan (CT scan) on May 13, 2019, at Exponent facilities in Natick, MA. The nondestructive CT scan was performed to assess the condition of the interior components, such as damage that may have led to the cylinder over-pressurization event.

Figure 10 shows an example CT scan image of the incident regulator. The results of the CT scan did not reveal any gross damage to the pressure regulator. Internal components such as the spring, piston, adjustment screw, poppet, and valve seat all appear to be intact. From the CT scan, multiple observations can be made regarding the possible setting of the regulator. First, the adjustment screw appears to have significant thread engagement, with only a few threads on the adjustment screw appearing above the regulator body. Second, the main spring is significantly compressed, as evidenced by a large cavity in the regulator body present above the main spring guide. Third, the piston appears to be bottomed out on the poppet housing. Fourth, the poppet appears to be nearly fully stroked away from the seat, with the poppet spring significantly compressed, allowing the valve to unseat fully. Based on the observed condition of the incident regulator internal components via CT scan, it appears that the incident regulator was in the fully open position, where it would not act as a pressure reducer.

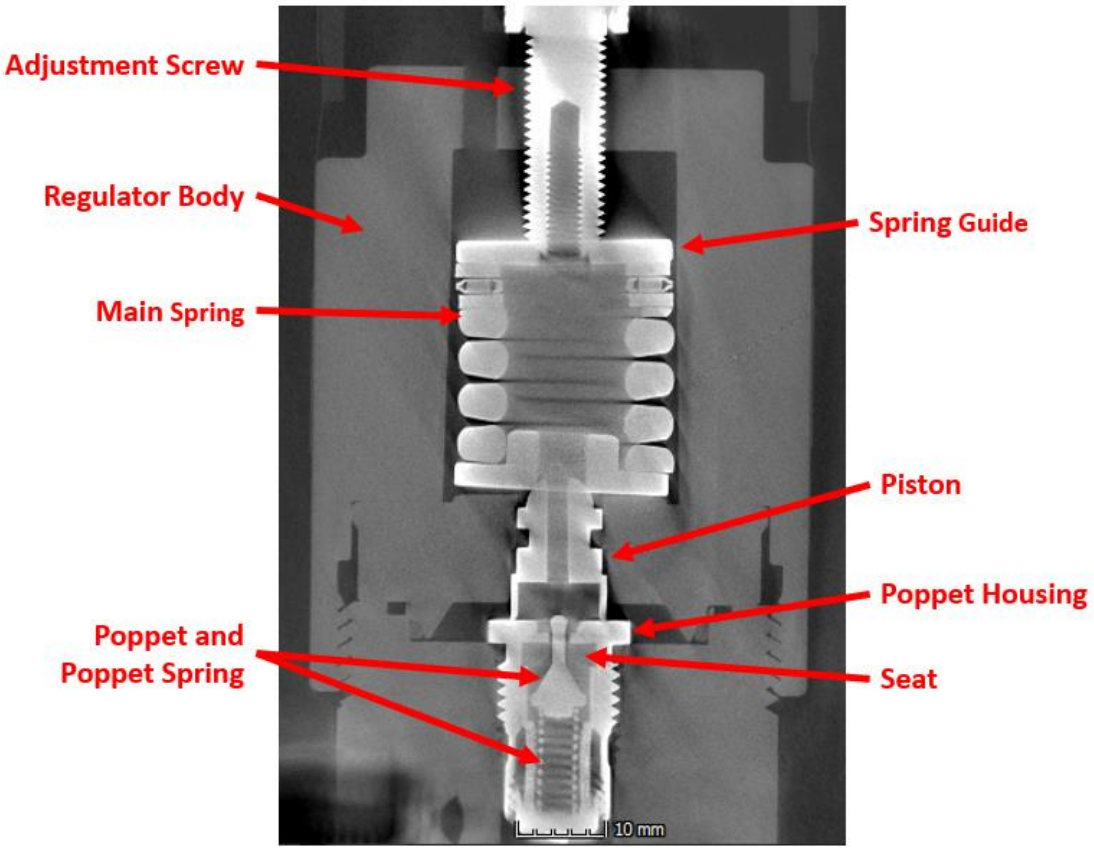

Figure 10. CT scan of incident regulator.

Exponent Testing

Exponent conducted an inspection and test on May 20, 2019 at Exponent Natick, MA on the incident and exemplar regulators to evaluate their functionality. All parties and experts were invited to participate and attend, and all protocol, results, and videos were made available following the inspection. While maintaining the integrity of the previously applied fixed-position tape on the adjustment knob (and therefore the engagement position of the regulator adjustment screw), the hoses, gauges, and fittings were disconnected from the incident regulator body inlet and outlet. These items were bagged and labeled as separate evidence items.

The exemplar regulator identified at Oprandy's was delivered to Exponent on the day of the exam and was tested with varying downstream pressure in order to determine its performance. The goal of this testing was to determine the pressure at the outlet of the regulator as the

adjustment knob was rotated, and ultimately to compare to the performance of the incident regulator. The exemplar regulator was placed on a test stand and connected to a regulated 6,000 psi upstream pressure source, an inlet pressure gauge, an outlet pressure gauge, and various pressure relief/vent safety valves. The adjustment knob on the exemplar regulator was turned counter-clockwise to a stop and a reference mark on the valve knob and body was created, as seen in Figure 11. The inlet pressure to the exemplar regulator was increased to approximately 5,000 psi. The adjustment knob on the exemplar regulator was turned ¼ revolution clockwise, to begin the regulation of pressure, and a secondary reference mark was made on the regulator knob and body. The distance between the valve body and knob were measured for reference. The adjustment knob was then turned one rotation in the clockwise direction to increase the regulator outlet pressure. Here the inlet and outlet pressures of the regulator were recorded and the distance of the adjustment knob to the valve body was measured. These steps were repeated until the adjustment screw on the regulator was fully bottomed out. Figure 11 shows the exemplar regulator during the test, in this case, where the inlet pressure was measured to be approximately 4,850 psi, the outlet pressure measured to be 1950 psi, and the length between the regulator knob and body was measured to be 0.700 inches. The maximum inlet pressure applied to the exemplar regulator was 5,400 psi. At this inlet pressure, with the exemplar regulator adjustment screw fully bottomed out, the outlet pressure was measured to be 5,350 psi, and the distance between the regulator body and adjustment knob was measured to be 0.494 inches. With no pressure applied to the inlet, the exemplar regulator bottomed out in the fully open position after 9 $^{1}/_{3}$ revolutions in the clockwise direction, while the distance between the regulator body and adjustment knob was measured to be 0.441 inches. Exponent notes this distance is greater than that measured on the incident regulator, indicating the exemplar likely has different internal components.

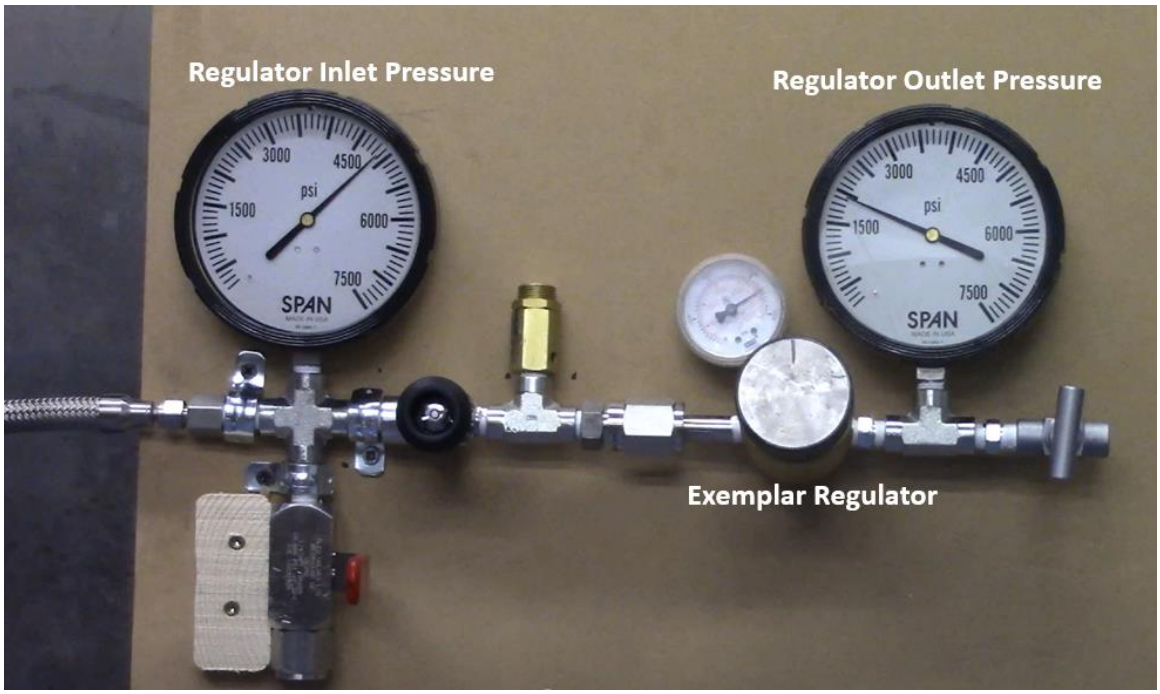

Figure 11. Photo of exemplar regulator testing at 4,850 psi inlet pressure. Exemplar regulator outlet pressure is 1,950 psi.

Following this testing, pressure was vented from the system and the exemplar regulator was removed from the test stand. The incident regulator was installed, and testing was performed to determine the pressure setting, which had been preserved from the incident scene. The distance between the incident regulator body and incident regulator adjustment knob was measured to be 0.249-0.276 inches, which is consistent with 0.255-0.280 inches in length as measured at Oprandy's Fire and Safety. The test stand upstream pressure source was slowly increased to apply full pressure to the inlet of the incident regulator. It was observed that, as the inlet pressure increased, the outlet pressure of the incident regulator tracked with inlet pressure as shown in Figure 12. This was true throughout the pressure range of this test, up to 6,000 psi as measured on the incident regulator inlet and outlet as shown in Figure 13. This test result is consistent with a regulator in the fully open position.

The results of these tests demonstrate that the incident regulator, which had an intended function of reducing the pressure coming from the Poseidon cascade system, was in the fully open position. This is consistent with the CT scan images. On the day of the incident, Mr. Foust attempted to recharge the fire suppression test tank on the floor, directly connecting to the

incident regulator from the Poseidon cascade system without any protection or safeguards. The configuration of the fill operation did not have a relief valve installed between the outlet of the regulator and the incident cylinder, as is required for safe handling of compressed gas cylinders.[23,24,25]

Oprandy's Fire and Safety is a user of the compressed gas,[26] and standards state that the user is responsible for the safe handling of the compressed gas container.[27] It is also the user's responsibility to ensure that the required overpressure protection is in place and properly installed.[28] Therefore, the responsibility to provide overpressure protection at the time of the incident was Oprandy's. To determine the efficacy of a pressure-relief device, it would be necessary to perform engineering calculations to ensure that the device is properly sized.[29] The design sizing calculations would be based not only on the cylinder intended to be protected, but also on maximum pressure and capacity of the pressure supply source, in this case, the cascade system.

The cascade system was charged with a compressor designed to bring air to SCBA fill pressures, which are significantly higher than the burst pressure of the incident cylinder. Guidelines establish that it is unsafe to transfill a cylinder without system protections when the cylinder has a pressure rating less than the compressed gas supply source,[30] and therefore the cascade system was an inappropriate and dangerous pressure source for refilling a fire suppression test tank. A commercial off-the-shelf air compressor (commonly available at

---

23 ASME Boiler and Pressure Vessel Code VIII.1, Section UG-125(g), Edition 2015.

24 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 5.9.9, Edition 2015.

25 Per Federal Regulation and international code, the incident test tank was not required to be equipped with a safety relief device. 49 CFR 178.61 Specification DOT-4BW Welded steel cylinders with electric-arc welded longitudinal seam, Section 12.1.2, Edition 1995.

26 CGA P-1: Standard for Safe Handling of Compressed Gases in Containers, Section 3.2.32, 2015 Edition.

27 CGA P-1: Standard for Safe Handling of Compressed Gases in Containers, Section 5.3, 2015 Edition.

28 ASME Boiler and Pressure Vessel Code VIII.1, Section UG-125(2), Edition 2015.

29 CGA S-1.1: Pressure Relief Device Standard Part 1- Cylinders for Compressed Gases, Section 5, Edition 2005.

30 CGA P-1 Safe Handling of Compressed Gases in Containers, Section 5.9.9, Edition 2015.

hardware and home improvement retailers) would be an appropriate pressure source to fill a cylinder rated to 225 psi.[31]

When Mr. Foust manipulated valves to commence the flow of gas into the test tank, because the pressure regulator was in the fully open position, the incident cylinder was subjected to the full pressure of the cascade system, which inevitably resulted in an explosion.

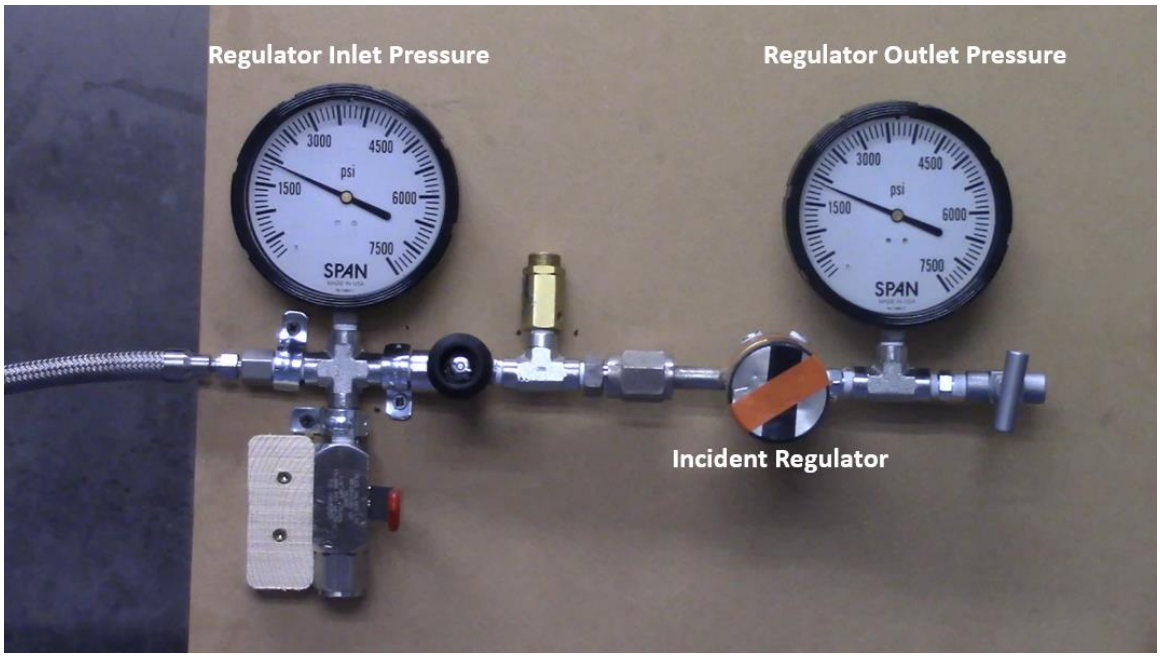

Figure 12. Photo of incident regulator testing at 1,900 psi inlet pressure. Incident regulator outlet pressure is 1,900 psi.

[31] DeWalt Workshop Air Compressor Product Overview.

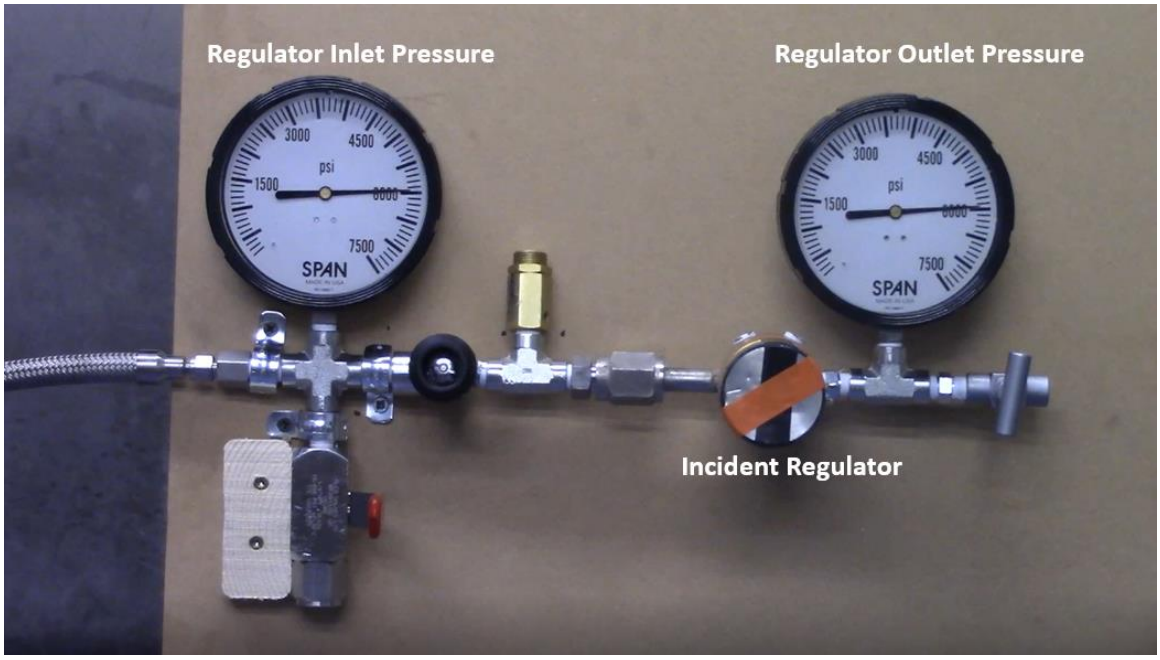

Figure 13. Photo of incident regulator testing at 6,000 psi maximum inlet pressure. Incident regulator outlet pressure is 6,000 psi.

Response to Plaintiff's Expert Report

Exponent reviewed an expert report titled *Analysis and Findings: Franklin Buono v Poseidon Air Systems, et al.*, authored by Thomas F. Taranto of Data Power Services, LLC. Mr. Taranto makes a number of claims regarding contributing root causes to the incident. Exponent disagrees with several of his claims, as discussed below.

Mr. Taranto states that the fire suppression test tank does not bear a nameplate or label and concludes that it is therefore not in compliance with NFPA 10: Standard for Portable Fire Extinguishers.[32] However, NFPA 10 defines a portable fire extinguisher as a device containing an extinguishing agent that can be expelled under pressure for the purpose of suppression or extinguishing fire.[33] Since the test tank did not contain nor was intended to contain fire extinguishing agent, NFPA 10 would not be applicable to the test tank. Instead, the practices of CGA P-1: Standard for Safe Handling of Compressed Gases in Containers would be applicable to the test tank. The test tank is a portable compressed gas cylinder made in accordance with U.S. Department of Transportation (DOT) specifications and therefore is encompassed by scope of CGA P-1.[34]

Mr. Taranto's report inaccurately asserts that it was the duty of Tyco Fire Products to provide product labels on the fire suppression test tank.[35] Because Oprandy's Fire and Safety Equipment is a business that fills compressed gases, Oprandy's is by definition a "gas supplier."[36] CGA guidelines state it is the responsibility of the gas supplier to ensure that the labels adequately warn of physical, health, and environmental hazards, and provide appropriate precautionary measures.[37] Therefore, any responsibility to provide labels on the fire

---

[32] Report of Tom Taranto, Data Power Services, LLC, Analysis and Findings: Franklin Buono v. Poseidon Air Systems, et al., January 8, 2020, pg. 59-60.

[33] NFPA 10: Standard for Portable Fire Extinguishers, Section 3.4.3, Edition 2013.

[34] CGA P-1: Standard for Safe Handling of Compressed Gases in Containers, Section 2, Edition 2015.

[35] Report of Tom Taranto, Data Power Services, LLC, Analysis and Findings: Franklin Buono v. Poseidon Air Systems, et al., January 8, 2020, pg. 57.

[36] CGA P-1: Standard for Safe Handling of Compressed Gases in Containers, Section 3.2.15, Edition 2015.

[37] CGA C-7: Guide to Classification and Labeling of Compressed Gases, Section 3, Edition 2014.

suppression test tank was Oprandy's. Mr. Taranto also claims that the manufacturer did not fulfill its "duty to warn of any danger from the intended or unintended but reasonably foreseeable use" of the product.[38] However, using a 6,000 psi pressure source to transfill a cylinder rated to 225 psi is not a reasonable or foreseeable use by any reasonable or foreseeable user of the product, based on standards in the industry.

Mr. Taranto's report does not provide an analysis of the physical and mechanical process by which the fire suppression test tank became over-pressurized, and therefore the report does not determine the cause of the incident. Despite admitting he was present for multiple inspections, Mr. Taranto does not discuss inspection of evidence, such as the incident test tank on April 16, 2018, or the incident site location on August 14, 2018. His report does not provide any photo documentation of the evidence. Mr. Taranto did not perform, observe, or discuss physical investigations of the exemplar and incident regulator. Exponent finds the report to be inherently incomplete in its findings and to be inaccurate as to the classification of the test tank and therefore any applicable cited regulations in his report.

[38] Report of Tom Taranto, Data Power Services, LLC, Analysis and Findings: Franklin Buono v. Poseidon Air Systems, et al., January 8, 2020, pg. 28.

Conclusions

Exponent conducted an investigation of the rupture of a fire suppression test tank that occurred on February 12, 2016 at Oprandy's Fire and Safety Equipment, Inc. (Oprandy's) in Middletown, NY. As part of our investigation, Exponent reviewed reports, photographs, depositions and other materials related to the incident. Exponent also conducted an examination of the incident site and equipment, and performed testing related to the cause of the incident.

The incident cylinder was rated for a maximum service pressure of 225 psi. An evaluation by Occupational Safety and Health Administration (OSHA) officials determined that the incident cylinder failed due to over-pressurization during a filling operation. An analysis by Exponent, (presented in a separate report by Brad James, Ph.D., P.E., FASM) reached the same conclusion.

To determine why the over-pressurization occurred, Exponent conducted an investigation of the incident pressure regulator associated with the Poseidon cascade system. The function of a pressure regulator is to reduce the pressure from a high-pressure source to a pressure that is suitable for the end system. Exponent performed a computerized tomography (CT) scan of the incident regulator which revealed that the pressure regulator was undamaged and fully engaged at or near the maximum open position. In this position, the regulator would not reduce pressure at all.

Exponent conducted a test to determine the pressure setting of the incident regulator. Pressure testing on the incident regulator demonstrated that the incident regulator did not provide any inlet-to-outlet pressure reduction, as tested up to an inlet pressure of 6,000 psi. The test results confirm that the incident regulator was in a full open position, as expected from the CT scan images. I therefore conclude that the over-pressurization event of the incident cylinder was caused by using a high pressure (potentially 5,000 psi or greater) cascade system with a fully opened regulator to fill the incident cylinder. Although the incident pressures within the high-pressure gas cylinders that comprise the cascade system were not recorded, it is reasonable that they were on the order of 5000 psi, because the system is used to fill SCBA tanks, which are rated for similar pressures. The fill system at Oprandy's lacked any safeguards against over-

pressurization, such as a safety relief device, and consequently allowed over-pressurization by simply turning the knob on the incident pressure regulator.

Appendix A

List of Case Materials Received and Literature Reviewed

Material Reviewed

APMR-000001 through 000023

BO-000001 through 000022

BP-000001 through 000011

BUONO-000002 through 001984

CP-000001 through 000022

CVS-000001 through 000007

ECHC-000001 through 000045

HFMG-000001 through 000047

KK-000001 through 000013

LC-000001 through 000039

LS-000001 through 000025

^OPRANDY-000001 through 001240

ORMC-000001 through 000309

POSEIDON-000001 through 000014

SD-000001 through 000020

TFP-280809-000001 through -000231

TFP-280809-001120 through -001370

UHC-000001 through 000005

UO-000001 through 000012

WC-002521 through 002527

WMC-000001 through 000160

WMC-000010 through 000160

WORTH00001 through 00008

Deposition of Dana Blakely, April 18, 2018 (with exhibits)

Deposition of Franklin Buono, April 30. 2018 (with exhibits)

Deposition of Franklin Buono, July 23, 2019 (with exhibits)

Deposition of James Getter, July 30, 2018 (with exhibits)

Deposition of Brian E. Scott, May 2, 2018 (with exhibits)

Deposition of Curtis Harding, September 12, 2019

Deposition of Adam Menor, September 12, 2019

Depositions of Patricia H. Scott, September 18, 2019 (with exhibits)

Bauer Poseidon TPSI/O-4/0 Compressor PSI 150, 200, 250 and PSO 250 Spare Parts Catalogue edition 10/2005

CT Scan Images dated May 13, 2019 by Exponent

DeWalt Workshop Air Compressor Product Overview, 15 Gal 1.6 HP Continuous Workshop Air Compressor

Evidence Pickup Photos by Exponent dated May 2, 2019

HIPPA Authorizations and Power of Attorney executed February 3, 2017, December 18, 2017, March 30, 2018, October 18, 2018, April 8, 2019, and April 10, 2019

Inspection Photos by Brad James dated April 16, 2018

Inspection Photos by Erik Christiansen dated August 18, 2018

Inspection Photos and Video by Erik Christiansen dated May 20, 2019

Kitchen Knight Components Price list dated July 24, 2000

Kitchen Knight Manual dated October 15, 1998

Kitchen Knight II Introduction Bulletin 2033 dated September 11, 2001

Kitchen Knight II Introduction Bulletin 2037 dated October 26, 2001

Kitchen Knight II Manual dated October 1, 2001

Mechanicstown Fire Department Incident Report

New York State Police Incident Report

Photos of Scene by John Bertran-Soto dated August 14, 2018

Photos of Scene by Patti Scott dated August 14, 2018

Poseidon Air Systems Air Boosters Brochure (from website)

Poseidon Air Systems Containment Systems Brochure (from website)

Poseidon Air Systems Fill Stations Brochure (from website)

Poseidon Air Systems Invoices #105100, 107265, 107312, 110466, and 110529

Report by Tom Taranto, Data Power Services, LLC, Analysis and Findings: Franklin Buono v. Poseidon Air Systems, et al. dated January 8, 2020

Silver Lake Fire Department Incident Report

U.S. Department of Labor- OSHA Citation and Notice of Penalty dated August 9, 2016

U.S. Department of Labor- OSHA Inspection #1125359 FOIA #848341 (18-022) case file dated February 16, 2018

U.S. Department of Labor- OSHA Evaluation of Ruptured Fire Suppression Tank, May 5, 2016

U.S. Department of Labor- OSHA Statement by Franklin Buono, May 23, 2016

U.S. Department of Labor- OSHA Inspection Report, Inspection #1125359, June 9, 2016

U.S. Department of Labor- OSHA Statement by Christopher Foust, August 9, 2016
Wallkill Police Department Incident Report

Workers Comp Ledgers dated February 20, 2018, October 2, 2018, and April 4, 2019

29 CFR 1910.147 The Control of Hazardous Energy (Lockout/Tagout)

49 CFR 178.61 Specification DOT-4BW, Welded steel cylinders with electric-arc welded longitudinal seam

ASME Boiler and Pressure Vessel Code VIII Division 1, Edition 2015

CGA C-7: Guide to the Preparation of Precautionary Labeling and Marking of Compressed Gas Containers, 1992 Edition

CGA C-7: Guide to Classification and Labeling of Compressed Gases, 2014 Edition

CGA P-1: Safe Handling of Compressed Gases in Containers, 2015 Edition

CGA S-1.1: Pressure Relief Device Standards Part 1- Cylinders for Compressed Gases, 2005 Edition

CGA SP-H, Revision 2

NFPA 10: Standard for Portable Fire Extinguishers, 2013 Edition

NFPA 17A: Standard for Wet Chemical Extinguishing Systems, 2013 Edition

Expert Report of Brad James, Buono v Tyco Fire Protection et al., Metallurgical Investigation, April 16, 2020

Court Filings, Including:

2017-06-15 Buono's Summons and Complaint [1] 4827-1591-8211_1.PDF
2017-08-04 Worthington's Notice of Removal of Action [1] 4810-9459-4691_1.PDF
2017-08-07 Notice to Appear in Courtroom 20-C on 10-17-17 at 11am 4816-3146-5603_1.PDF
2017-08-08 Buono's Appearance of Counsel for Lawrence D. Lissauer [3] 4826-1588-1859_1.PDF
2017-08-17 Worthington's Answer to Buono's Complaint [4] 4836-8713-1779_1.PDF
2017-08-18 Worthington's Corporate Disclosure Statement [5] 4820-9342-7587_1.PDF
2017-09-21 TFP's Answer to Buono's Complaint [9] 4839-8719-5267_1.PDF
2017-09-21 TFP's Corporate Disclosure [7] 4850-6574-8611_1.PDF
2017-09-21 TFP's Jury Demand [8] 4827-6827-9171_1.PDF
2017-09-21 TFP's Reply to Worthington's Cross-Claims [10] 4811-8546-5731_1.PDF
2017-09-25 TFP's Corporate Disclosure [11] 4840-7690-2019_1.PDF
2017-10-13 Lawrence Lissauer to J-Kennan re Adjournment of Conference [15] 4851-2667-7635_1.PDF
2017-10-16 Order Granting Adjournment of Conference Until 12-07-17 @ 11 00 am [16] 4831-2632-1027_1.PDF
2017-10-26 Order Granting TFP's PHV for Stigall [17] 4839-7252-5955_1.PDF
2017-11-13 Order re Rescheduled Conference [18] 4851-0394-2275_1.PDF
2017-12-07 Buono's Appearance of Counsel [19] 4839-9953-5235_1.PDF
2017-12-07 Buono's Entry of Appearance of Linda Armatti-Epstein [19] 4833-9993-5619_1.PDF
2017-12-07 Joint Rule 26(f) Report and Discovery Plan [21] 4833-7221-4147_1.PDF
2017-12-07 Poseidon Airlines' Notice of Appearance of Richard Bentzen [20] 4835-7360-7811_1.PDF
2017-12-07 Poseidon's Entry of Appearance of Richard Bentzen [20] 4825-8368-4995_1.PDF
2017-12-08 Minute Entry For CMC 4823-7462-2602_1.MSG
2017-12-08 Notice of Redesignation to Another Judge 4848-1715-1875_1.PDF
2018-02-01 Buono's Notice of Take Oral Depo of Poseidon on 03-01-018 @ 10 00 am 4838-2265-5619_1.PDF
2018-02-02 Minute Entry for CMC 4830-5182-4515_1.PDF
2018-02-10 Buono's Letter to the Court Submitting Proposed Discovery Schedule [23] 4839-9049-7667_1.PDF
2018-02-10 Joint Rule 26(f) Report and Discovery Plan [24] 4847-3924-5955_1.PDF
2018-02-10 Rule 26(f) Report and Discovery Plan [23 - 24] 4823-0110-7075_1.PDF
2018-02-21 Order Approving Proposed Schedule re Rule 26(f) Report and Discovery Plan [25] 4852-9918-3491_1.PDF
2018-02-23 Notice Regarding Deficient Motion to Appear PHV for Shelley Molineaux 4810-4661-6195_1.MSG
2018-02-23 Worthington's Notice of Motion to Admit Shelley Molineaux PHV [26] 4848-8578-5219_1.PDF
2018-02-27 Buono's Affidavit of Service to TFP 4822-6375-6163_1.PDF
2018-02-27 Buono's Affidavit of Service to Worthington 4847-0104-0003_1.PDF
2018-03-01 Buono's Cross-Notice to Take Depo of Tyco 4826-9740-3523_1.PDF
2018-03-01 Buono's Cross-Notice to Take Oral Depo of Worthington 4823-5399-5651_1.PDF
2018-03-08 Buono's Appearance of Counsel - Kenneth Fromson [31] 4829-7947-1235_1.PDF
2018-03-08 Notice RE Worthington's Deficient Motion to Appear PHV - Shelley Molineaux 4826-6929-3187_1.MSG
2018-03-08 Worthington's Notice of Motion To Admit Shelley A. Molineaux PHV [30] 4812-0318-4003_1.PDF
2018-03-14 Worthington's Notice of Motion to Admit Shelley Molineaux PHV [32] 4825-0492-6339_1.PDF
2018-03-15 Notice re PHV Motion of Molineaux 4836-1785-9203_1.PDF
2018-03-19 Order for Admission PHV - Shelley Molineaux [33] 4820-0731-2003_1.PDF
2018-03-23 Stigall to Court re Court Reassignment [34] 4849-4594-8803_1.PDF
2018-03-26 Court's Notice of Case Reassignment to Judge Nelson Stephen Roman [Docket Text] 4844-8929-3955_1.MSG
2018-03-26 Court's Notice of Redesignation to Magistrate Judge Lisa M. Smith [Docket Text] 4844-5298-4963_1.MSG
2018-03-27 Buono's Letter to Magistrate re Conference Confirmation [36] 4811-4187-3287_1.PDF
2018-03-27 Court's Re-Scheduling Notice of Status Conference - 04-24-18 @ 11 30 am [39] 4845-9227-8151_1.PDF
2018-03-27 Notice of Court Conference - 01-11-19 @ 10 am [38] 4828-6297-9719_1.PDF

2018-03-27 Notice of Court Conference - 01-11-19 @ 10 am [38] 4828-6297-9719_1.PDF
2018-03-27 Order Cancelling Status Conference for 03-28-18 [35] 4812-4260-2119_1.PDF
2018-03-27 Order re the Progress of the Pre-Trial Discovery [40] 4838-2052-6215_1.PDF
2018-03-27 Order Referring Case to Magistrate Judge Lisa M. Smith [37] 4811-3492-6471_1.PDF
2018-03-28 Stipulated Protective Order 4851-8587-4307_1.PDF
2018-03-29 TFP's Subpoena for Site Inspection of Oprandy's Fire & Safety Equipment, Inc. On 05-01-18 @ 10 00AM 4834-5090-6503_1.PDF
2018-03-29 TFP's Subpoena To Testify [with RFPDs] To Brian Scott On 05-02-18 @ 10 00AM 4843-7539-1363_1.PDF
2018-04-17 Stipulated Protective Order with New Paragraph & Attachment [41] 4846-0660-7492_1.PDF
2018-04-24 Buono's Notice of Appearance (Brian Acard) [42] 4848-8666-4579_1.PDF
2018-04-24 Court's Entry re Status Conference Held on 04-24-18 4850-4186-2531_1.MSG
2018-04-24 Minute Entry 4822-0237-5555_1.MSG
2018-05-04 TFP's Appearance of Counsel (Sandra Stgall) [43] 4850-8892-3011_1.PDF
2018-05-25 Poseidon's Answer to Buono's Complaint [44] 4841-8958-4515_1.PDF
2018-06-01 Minute Entry for Proceedings Held Before Magistrate J-Lisa Margaret Smith; Status Conference 4817-5333-3891_1.MSG
2018-06-04 Poseidon's Answer to TFP's Cross-Claim [46] 4832-9901-6323_1.PDF
2018-06-04 Poseidon's Answer to Worthington's Cross-Claim [45] 4845-7500-0707_1.PDF
2018-06-05 Minute Entry re Status Conference Held on 06-01-18 4827-5393-4723_1.MSG
2018-06-05 Poseidon's Rule 7.1 Corporate Disclosure Statement [47] 4822-5155-2899_1.PDF
2018-06-07 TFP's Reply to Poseidon's Crossclaims [48] 4821-4446-8611_1.PDF
2018-07-05 Worthington's Depo Notice for James Getter on 07-30-18 @ 10 00 am 4810-5041-3443_1.PDF
2018-07-13 Buono's Amended Complaint [49] 4822-3366-1059_1.PDF
2018-07-13 Buono's Summons to Simpers [50] 4843-1247-2195_1.PDF
2018-07-16 Buono's Amended Complant [51] 4811-5899-9939_1.PDF
2018-07-16 Notice of Deficient Pleading re Buono's Summons to Simpers 4847-2180-7235_1.PDF
2018-07-26 Request for Issuance of Summons to Pamela L. Simpers [52] 4848-7732-0067_1.PDF
2018-07-27 Buono's Summons to Pamela L. Simpers [53] 4822-3694-0163_1.PDF
2018-07-30 TFP's Answer to Amended Complaint [54] 4832-2018-5731_1.PDF
2018-07-30 TFP's Answer to Amended Complaint and Cross-Claims [54] 4847-2174-6051_1.PDF
2018-07-31 Minute Entry re Status Conference Held on 07-31-18 [Docket Text] 4819-6064-7043_1.MSG
2018-09-12 Notice re Motion [55] PHV William T. Nagle 4819-0697-8179_1.MSG
2018-09-12 Worthington's Notice of Motion to Admit PHV William T. Nagle [55] 4850-4436-5703_1.PDF
2018-09-14 Affidavit of Service for Bauer Compressors [57] 4817-1141-4915_1.PDF
2018-09-14 Summons Returned Executed for Tyco [56] 4821-7206-5667_1.PDF
2018-09-17 Buono's Letter to Judge Smith Requesting Conference Adjournment [58] 4818-2132-1859_1.PDF
2018-09-17 Memo from Judge Lisa M. Smith [60] 4821-2331-2515_1.PDF
2018-09-17 Order Granting Motion for William Nagle to Appear PHV [59] 4811-0992-5763_1.MSG
2018-09-18 Memo Assigning Matter to Justice Roman Smith 4843-9819-4563_1.PDF
2018-09-18 Notice of New Conference Date [61] 4814-0988-3779_1.PDF
2018-10-02 Minute Entry - Status Conference 4846-4303-7571_1.MSG
2018-10-12 TFP's Proposed Stipulation and Proposed Order Amending Caption for Purpose of Substituting Parties [62] 4848-2811-3027_1.PDF
2018-10-15 Order Granting TFP's Proposed Order Amending Caption for the Purpose of Substituting Parties [63] 4825-6279-7443_1.PDF
2018-10-16 Order Granting [64] Poseidon's Proposed Order of Dismissal [Docket Text] 4848-1690-6115_1.MSG
2018-10-16 Poseidon's Proposed Order of Dismissal as to Poseidon [64] 4837-9658-1507_1.PDF
2018-10-17 Buono's [Letter] Request for Adjournment of Conference [65] 4833-4536-6147_1.PDF
2018-10-18 Court's Scheduling Notice of Status Conference on 10-23-18 @ 3 30PM 4834-7879-6419_1.PDF
2018-10-19 Court's Re-Scheduling Notice of In-Person Status Conference to Telephonic Status Conference on 10-23-18 @ 3 30PM [69] 4838-4867-7251_1.PDF
2018-10-19 Stipulation of Dismiss without Prejudice as to Worthington Industries, Inc. & Poseidon Air Only [68] 4844-4748-0451_1.PDF

2018-10-19 Stipulation of Dismiss without Prejudice as to Worthington Industries, Inc. & Poseidon Air Only [68] 4844-4748-0451_1.PDF
2018-10-22 TFP's Motion for Leave to File 3rd Party Complaint with Exhibits [70] 4818-0402-3939_1.PDF
2018-10-23 Court's Cancellation Notice of In-Person Conference Scheduled for 10-25-18 @ 11 00AM [72] 4821-9147-6612_1.PDF
2018-10-23 Minute Entry Adjourning In-Person Status Conference to 12-06-2018 @ 11 00AM [Docket Text] 4829-2697-8947_1.MSG
2018-10-23 Order Granting TFP's Motion to Leave to File 3rd Party Complaint [71] 4833-6725-0307_1.PDF
2018-10-26 TFP's 3rd Party Complaint Against Oprandy [75] 4838-5516-5827_1.PDF
2018-10-29 Court's Notice to TFP re Deficient Request for [74] Issuance of Summons [Docket Text] 4814-7470-2211_1.MSG
2018-10-29 TFP's Request for Issuance of Summons to Oprandy [76] 4852-9545-8948_1.PDF
2018-10-30 Court's Notice re Deficient Request for [76] Issuance of Summons [Docket Text] 4848-7857-6003_1.MSG
2018-10-30 Court's Notice to re Party Name Modification of Oprandy [Name Entered in All Caps] [Docket Text] 4839-2725-5939_1.MSG
2018-10-30 TFP's Request for Issuance of Summons to Oprandy [77] 4850-3803-3540_1.PDF
2018-10-31 Service of Summons of Complaint to Oprandy [78] 4813-1526-1060_1.PDF
2018-11-19 TFP's AOS of Subpoena Served on Oprandy's Fire & Safety [79] 4849-4431-6804_1.PDF
2018-11-19 TFP's AOS of Summons & 3rd Party Complaint on Oprandy's Fire & Safety [80] 4818-5737-4596_1.PDF
2018-12-04 Amended Stipulation of Dismissal of Claims and Cross-Claims Against Poseidon and Worthington Without Prejudice [84] 4842-6180-3402_1.PDF
2018-12-04 Oprandy's Notice of Appearance of Daniel Rosenberg as Counsel [83] 4834-7093-9780_1.PDF
2018-12-04 Oprandy's Notice of Appearance of Scott Haworth as Counsel [82] 4824-9608-1539_1.PDF
2018-12-05 Buono's Agrrement to Oprandy's EOT and Reminder J-Roman Scheduled Conference on 01-11-19 [86] 4827-2956-6602_1.PDF
2018-12-05 Oprandy's Letter of Motion to Consent to EOT [85] 4842-0569-9466_1.PDF
2018-12-06 Order Granting (85) Letter Motion for EOT to File Answer re (80) and Request Adjourn 12-06-18 Conference to 01-11-19 [87] 4843-4037-5946_1.PDF
2018-12-06 Set-Reset Hearings - Status Conference Set for 01-11-19 @ 11 00 AM 4817-5694-6826_1.MSG
2018-12-21 TFP's Subpoena for RFPD and Inspection of Premises to Bauer Breathing Air, Inc. on 01-25-19 @ 9 00 AM [88] 4827-3166-8618_1.PDF
2019-01-07 Oprandy's Answer to TFP's Complaint with Counter-Claims [90] 4816-9068-7626_1.PDF
2019-01-07 Oprandy's Rule 7.1 Corporate Disclosure Statement [89] 4846-7696-6282_1.PDF
2019-01-07 TFP's Subopena to Produce Documents, Information or Objects or Permit Inspection of Premises to Bauer Compressors, Inc. 4820-4275-1114_1.PDF
2019-01-08 TFP's Notice of Subpoena to Produce to Bauer Compressors on 01-25-19 @ 9 am [92] 4823-9500-2762_1.PDF
2019-01-10 TFP's Notice of Appearance of Christina Marshall [93] 4818-1625-5370_1.PDF
2019-01-11 Discovery Schedule [94] 4810-8022-1066_1.PDF
2019-01-11 Minute Entry 4848-7593-5114_1.MSG
2019-01-14 Minute Entry re Statue Conference Held on 01-11-19 4842-2300-0714_1.MSG
2019-01-14 Oprandy's Notice to Take Depo of Franklin Buono on 03-25-19 @ 10 am 4839-3444-6986_1.PDF
2019-01-14 Oprandy's Notice to Take Depo of TFP on 04-03-19 @ 10 am 4825-9253-1850_1.PDF
2019-01-15 Affidavit of Service of Affidavit Served on Bauer Compressors - 01-11-19 [95] 4852-9740-0458_1.PDF
2019-01-29 Buono's Supplemental Rule 26(a)(a) Disclosures 4846-2450-4463_1.PDF
2019-03-28 Court's Notice of Scheduling In-Person Status Conference Set for 05-30-19 @ 10.30 AM 4852-1265-1412_1.msg
2019-06-06 Minute Entry 4831-3329-6797_1.msg
2019-06-07 P-Buono's Notice of F.R.C.P. 30(b)(6) Corporate Deposition(s) of D-TFP 4828-4620-6880_1.pdf
2019-06-12 TFP's Motion for Admission PHV re Sarah Baltzell [98] 4833-6188-6621_1.pdf
2019-06-12 TFP's Motion for PHV re Sarah Baltzell [99] 4830-4311-9517_1.pdf
2019-06-25 Buono's Notice of F.R.C.P. 30(b)(6) Corporate Deposition(s) of TFP 4814-9031-0045_1.pdf
2019-06-27 Oprandy's Notice of Appearance as Counsel [100] 4834-7120-1181_1.pdf
2019-07-00 D-TFP's Motion for Withdrawal of Attorney re Sandra Stigall 4816-6050-7037_1.pdf
2019-07-29 Buono's Notice of 30(b)(6) Corporate Depo of TFP on 09-12-2019 at 9AM 4829-2588-6882_1.pdf
2019-08-06 Oprandy's Amended Notice of 30(b)(6) Corporate Depo of TFP on 09-12-2019 at 9AM 4832-2787-6770_1.pdf
Buono (NY) Def Tyco Fire Products LPs 1st Set of RFPDs to Pltf 4847-4002-3171_1.PDF
Buono (NY) Def Tyco Fire Products LPs 1st Set of RFPDs to Pltf 4850-9234-4707_1.PDF
Buono (NY) Def Tyco Fire Products LPs Rule 26(a)(1) Disclosures 4811-3561-7667_1.PDF

Buono (NY) Def Tyco Fire Products LPs Rule 26(a)(1) Disclosures 4832-5164-3523_1.PDF
Subpoena to Bauer Breathing Air 4819-0001-4474_1.PDF

RESPONSE - 2019-07-08 D-TFPs Responses to Oprandys 1st Notice to Produce 4824-1594-0509_1.pdf

2017-12-18 Buono's Rule 26(a)(1) Disclosures 4826-6863-3475_1.PDF
2018-01-31 TFP's 1st RFPD to Buono 4851-9917-2483_1.PDF
2018-01-31 TFP's 26(a)(1) Initial Disclosures 4850-0113-3443_1.PDF
2018-02-26 Worthington's Rule 26(a)(1) Initial Disclosures [27] 4835-6798-3747_1.PDF
2018-03-01 Buono's 1st IROGs to TFP [29] 4816-6921-0755_1.PDF
2018-03-01 Buono's 1st IROGs to Worthington [28] 4822-2921-8435_1.PDF
2018-03-01 Buono's Demand for Expert Information to TFP [29] 4827-6720-0387_1.PDF
2018-03-01 Buono's Demand for Expert Information to Worthington [28] 4831-0281-0243_1.PDF
2018-03-01 Buono's Request to Produce to TFP [29] 4850-2183-8723_1.PDF
2018-03-01 Buono's Request to Produce to Worthington [28] 4853-0711-6931_1.PDF
2018-03-01 Buono's Request to Produce, Demand for Expert Information, 1st IROGS, and 1st RFPD to Worthington [28] 4829-3163-0467_1.PDF
2018-03-01 Buono's RFA to TFP [29] 4820-3555-9811_1.PDF
2018-03-01 Buono's RFPD to TFP [29] 4818-3423-3219_1.PDF
2018-03-01 Buono's RFPD to Worthington [28] 4815-1553-1651_1.PDF
2018-03-30 Buono's Response to TFP's 1st Set RFPD 4836-6828-2755_1.PDF
2018-03-30 Buono's Response to TFP's Request to Produce 4817-0364-6851_1.PDF
2018-04-02 TFP's Response To Buono's 1st IROGs 4815-8582-3367_1.PDF
2018-04-02 TFP's Response To Buono's Demand For Expert Information 4818-3748-1607_1.PDF
2018-04-02 TFP's Response To Buono's Request To Produce 4826-9311-9623_1.PDF
2018-04-02 TFP's Response To Buono's RFAs 4824-4146-1383_1.PDF
2018-04-02 TFP's Response To Buono's RFPDs 4851-5930-4839_1.PDF
2018-04-13 TFP's RFPDs To Worthington 4843-3722-1255_1.PDF
2018-05-25 Poseidon's Collateral Source Demand to Buono 4816-0071-8471_1.PDF
2018-05-25 Poseidon's Demand for IROGs to Buono 4813-6583-7447_1.PDF
2018-05-25 Poseidon's Demand Pursuant to Mandatory Insurer Reporting Law to Buono 4853-0835-2135_1.PDF
2018-05-25 Posidon's Demand Pursuant to Rule 26b4 (Expert Witness) to Buono 4820-7041-4983_1.PDF
2018-05-29 Poseidon's Demand for Production of Documents to Buono 4822-5502-9895_1.PDF
2018-06-04 TFP's Supplemental Responses to Buono's RFP 4812-9072-8323_1.PDF
2018-07-20 Worthington's Response to TFP's 1st RFPD 4821-9677-5555_1.PDF
2018-09-07 TFP's RFPD to Poseidon 4847-0724-2631_1.PDF
2018-10-19 Buono's Demand for Discovery & Inspection to TFPP [67] 4819-1766-6948_1.PDF
2018-10-19 TFP's 1st IROGs to Buono 4811-9100-4036_1.PDF
2018-11-26 TFP's Response to Buono's Demand for Discovery and Inspection 4829-1833-0243_1.PDF
2019.07.24 Buono - Tycos Notice to Take 30(b)(6) Oral Dep of Oprandys Corp Rep 4824-4612-3169_1.pdf
2019.07.24 - Buono - Tycos Notice to take Oral Dep of Patricia Scott 4825-4947-3441_1.pdf
2019.08.21 Buono Dr. Koch CV 4833-7886-7874_1.pdf
2019-01-10 Buono's Response to TFP's IROGs 4837-4131-1370_1.PDF
2019-01-29 Buono's Supplemental Rule 26(a)(a) Disclosures 4847-5907-8543_1.PDF
2019-02-07 TFP's RFPD to Oprandy's 4847-7653-2106_1.PDF
2019-02-11 Buono's Supplemental Response to TFP's 1st Set of IROGs 4847-8342-3627_1.PDF
2019-02-28 D-Tyco's Supplemental Disclosures 4812-6512-9359_1.PDF
2019-03-26 [97-1] Subpoena to Produce Documents, Information , or Objects to Pamela Slimpers 4849-8958-9391_1.pdf
2019-03-26 D-Tyco's Subpoena to Produce Documents, Information, or Objects 4845-4328-2319_1.pdf
2019-04-08 Buono's Letter Supp. Rule 26(a)(1) Disclosures - Authorizations and Photographs 4821-9275-9453_1.PDF
2019-06-24 Oprandy's Response to Buono's RFPDs 4820-8383-8619_1.pdf
2019-06-24 Oprandy's Response to Tyco's RFPDs 4821-3417-0267_1.pdf

2019-08-02 [103] Buono's Rule 26 Disclosure - Response to Demand for Expert Info 4841-0878-0702_1.pdf
2019-08-08 Buono's Supplemental Expert Disclosure - R. Michael Koch 4836-3052-9954_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition DT of Alicia Tollen 4833-8360-1826_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition DT of Emily Fanseca 4824-7737-0018_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition of Daniel Truex (Mechanicstown FD) 4842-4304-5538_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition of Kevin Slover 4848-1503-9394_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition of Kimberly Tremberger 4816-4041-0018_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition of Robby Hawkins 4851-3400-3106_1.pdf
2019-08-23 Buono (SDNY) D-TFP's Notice of Deposition of William Tremberger 4817-9166-7106_1.pdf
Buono (NY) Patricia Smith Depo Notice Subpoena 4830-8809-7179_1.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_1.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_2.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_3.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_4.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_5.pdf
Buono (SDNY) Alicia Tollen Depo Notice Subpoena 4817-7107-7282_6.pdf
Buono (SDNY) Daniel Truex Depo Notice Subpoena 4828-4671-9906_1.pdf
Buono (SDNY) Daniel Truex Depo Notice Subpoena 4828-4671-9906_2.pdf
Buono (SDNY) Daniel Truex Depo Notice Subpoena 4828-4671-9906_3.pdf
Buono (SDNY) Daniel Truex Depo Notice Subpoena 4828-4671-9906_4.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_1.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_2.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_3.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_4.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_5.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_6.pdf
Buono (SDNY) Emily Lynn Fanseca Depo Notice DT Subpoena 4839-7806-8130_7.pdf
Buono (SDNY) Kevin Slover Depo Notice Subpoena 4831-3731-6002_1.pdf
Buono (SDNY) Kevin Slover Depo Notice Subpoena 4831-3731-6002_2.pdf
Buono (SDNY) Kimberly Tremberger Depo Notice Subpoena 4831-1574-7234_1.pdf
Buono (SDNY) Kimberly Tremberger Depo Notice Subpoena 4831-1574-7234_2.pdf
Buono (SDNY) Kimberly Tremberger Depo Notice Subpoena 4831-1574-7234_3.pdf
Buono (SDNY) Robby Hawkins Depo Notice Subpoena 4815-6327-2354_1.pdf
Buono (SDNY) Robby Hawkins Depo Notice Subpoena 4815-6327-2354_2.pdf
Buono (SDNY) William Tremberger Depo Notice Subpoena 4820-4272-6306_1.pdf
Buono (SDNY) William Tremberger Depo Notice Subpoena 4820-4272-6306_2.pdf
Buono (SDNY) William Tremberger Depo Notice Subpoena 4820-4272-6306_3.pdf

Appendix B

Curriculum Vitae of Erik Christiansen, Ph.D., P.E., C.F.I

Exponent®
Engineering & Scientific Consulting

Erik W. Christiansen, Ph.D., P.E., CFI
Principal Engineer | Thermal Sciences
5401 McConnell Avenue | Los Angeles, CA 90066
(310) 754-2723 tel | echristiansen@exponent.com

Professional Profile

Dr. Christiansen specializes in fire science, combustion chemistry, fluid mechanics, thermodynamics, and heat transfer. He performs origin and cause investigations of fires and explosions, ranging from small residential fires to large-scale industrial incidents to multi-acre wildland fires. Dr. Christiansen has investigated numerous vehicle related fires, including passenger cars, recreational vehicles, and on- and off-highway trucks, as well as fires in marine vessels such as recreational boats, cruise ships and large shipping vessels. He also investigates thermal related failures of consumer appliances; commercial and residential cooking equipment; and heating, ventilation, air-conditioning, and refrigeration (HVAC&R) systems.

Dr. Christiansen's project experience also includes natural gas and propane appliances and systems, oxygen equipment, welding and hot work activities, industrial ovens, furnaces and boilers, runaway chemical reaction (spontaneous combustion), burn injuries, carbon monoxide (CO) exposure, and fire and building code review. Additionally, he performs engineering analysis of fire protection systems, including the design, testing, and operation of automatic fire sprinkler systems and dry and wet chemical fire suppression systems. Dr. Christiansen has testified as an expert witness in state and federal court on various occasions.

Prior to joining Exponent, Dr. Christiansen was a research assistant in the Combustion and Energy Laboratory at Princeton University where he conducted research on the effects of flame instabilities on extinction and the limits of flammability.

Academic Credentials & Professional Honors

Ph.D., Mechanical and Aerospace Engineering, Princeton University, 2002

B.E., Mechanical Engineering, Cooper Union, 1996

Guggenheim Merit Fellowship, Princeton University, 1996

William C. and Esther Hoffman Beller Prize in Mechanical Engineering, The Cooper Union, 1996

Licenses and Certifications

Certified Fire Investigator (C.F.I.), in accordance with the International Association of Arson Investigators (IAAI), Certificate No. 22-080801

Registered Professional Mechanical Engineer, California, #M32771

Registered Professional Fire Protection Engineer, California, #FP1724

Registered Professional Mechanical Engineer, Nevada, #021098

Registered Professional Mechanical Engineer, Colorado, #45809

Registered Professional Mechanical & Fire Protection Engineer, Idaho, #15956

Certified Forklift Operator

Fire Cause and Origin Investigation Training (1A), California Office of State Fire Marshal

Techniques of Fire Investigation Training (1B), California Office of State Fire Marshal

Wildland Fire Origin and Cause Determination (FI-210), National Wildfire Coordinating Group

FI-210 Bridge/Refresher Course on 2014 updates, National Wildfire Coordinating Group

Advanced Fire/Arson Investigation (Live Burn), California Conference of Arson Investigators

Hazardous Waste Operations and Emergency Response (29 CFR 1910.120) Certification

Industrial Furnaces and Ovens Safety Standards Training, Industrial Heating Equipment Association

Professional Affiliations

[2014 – Present] Principal Member: Technical Committee on Wildland and Rural Fire Protection, NFPA 1141 *Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas; and NFPA 1142 Standard for Water Supplies for Suburban and Rural Firefighting;* NFPA 1144 *Standard for Reducing Structure Ignition Hazards from Wildland Fire, National Fire Protection Association*

[2010 – Present] Principal Member: Technical Committee on Industrial and Medical Gases, NFPA 51 *Standard for the Design and Installation of Oxygen-Fuel Gas Systems for Welding, Cutting, and Allied Processes;* NFPA 51A *Standard for Acetylene Cylinder Charging Plants;* NFPA 55 *Standard for the Storage, Use, and Handling of Compressed Gases and Cryogenic Fluids in Portable and Stationary Containers, Cylinders, and Tanks;* and NFPA 560 *Standard for the Storage, Handling, and Use of Ethylene Oxide for Sterilization and Fumigation, National Fire Protection Association*

[2004 – 2018] Principal Member: Technical Committee on Ovens and Furnaces, NFPA 86 *Standard for Ovens and Furnaces, National Fire Protection Association*

[2010 – 2018] Principal Member: Technical Committee on Fluid Heaters, NFPA 87 *Recommended Practice for Fluid Heaters, National Fire Protection Association*

National Fire Protection Association (member)

International Association of Wildland Fire (member)

Publications

Simeoni A, Owens ZC, Christiansen EW, Kemal A, Gallagher M, Clark KL, Skowronski N, Mueller EV, Thomas JC, Santamaria S, Hadden RM. A preliminary study of wildland fire pattern indicator reliability following an experimental fire. Journal of Fire Sciences 2017; 35:359-378.

Jokar A, Christiansen EW, Reza A. Refrigeration systems failures due to sudden evaporation and condensation phenomena. Proceedings, ASHRAE Annual Conference, art. no. SE-14-C015, Seattle, WA, 2014.

Reza A, Christiansen EW. A case study of an ethylene oxide explosion in a sterilization facility. Chemical Engineering Transactions, 31, 463-468 DOI: 10.33303/CET1331078. Also in Proceedings of the 14th EFCE Symposium on Loss Prevention and Safety Promotion in the Process Industries, Florence, Italy, May 2013.

Martin RJ, Christiansen EW. New explosion relief standards impact coating equipment. Metal Finishing; 2007; 105:77-81. July.

Christiansen EW, Reza A. Case study of a TFE explosion in a PTFE manufacturing facility. Process Safety Progress 2007; 26(1):77-82, March.

Christiansen EW, Tse SD, Law CK. A computational study of oscillatory extinction of spherical diffusion flames. Combustion and Flame 2003; 134:327-337.

Christiansen EW, Law CK. Pulsating instability and extinction of stretched premixed flames. Proceedings, Combustion Institute, 2003; 29:61-68.

Yoo SW, Christiansen EW, Law CK. Oscillatory extinction of spherical diffusion flames: micro-buoyancy experiment and computation. Proceedings, Combustion Institute, 2003; 29:29-36.

Christiansen EW, Sung CJ, Law CK. The role of pulsating instability and global Lewis number on the flammability limit of lean heptane/air flames. Proceedings, Combustion Institute 2001; 28:807-814.

Christiansen EW, Law CK, Sung CJ. Steady and pulsating propagation and extinction of rich hydrogen/air flames at elevated pressures. Combustion and Flame, 2001; 124: 35-49.

Christiansen EW, Sung CJ, Law CK. Pulsating instability in near-limit propagation of rich hydrogen/air flames. Proceedings, Combustion Institute, 1999, 27:555-562.

Presentations

Christiansen EW, Xiouris, C, Zelhofer, AJ, Cymbalist, N. The Effect of Fuel Moisture on the Ignition of Forest Fuels by Molten Copper and Aluminum Droplets. Sixth International Fire Behavior and Fuels Conference, Sydney, Australia, May 2019.

Christiansen EW, Karnesky J. Understanding Ignition: How One Spark Can Burn an Entire Forest. The Fire Continuum Conference: Preparing for the Future of Wildland Fire, Missoula, MT, May 2018.

Karnesky J, Christiansen EW. Ignition of wildland fuels by hot metal particles and droplets. 15th International Conference, Fire and Materials, San Francisco, CA, February 2017.

Simeoni A, Owens ZC, Christiansen EW, Kemal A, Gallagher M, Clark KL, Skowronski N, Mueller EV, Thomas JC, Santamaria S, Hadden RM. A study of wildland fire direction indicator reliability following two experimental fires, International Symposium on Fire Investigation Science & Technology, Scottsdale, AZ, September, 2016.

Christiansen EW. How to Safely Process a Fire Scene. IEEE Symposium on Product Compliance Engineering, Anaheim, CA May 2016.

Christiansen EW. What makes a competent ignition source? Experimental techniques for answering the fundamental question. 8th Annual Wildland Fire Litigation Conference, Monterey, CA, April 2014.

Reza A, Christiansen EW. A case study of an ethylene oxide explosion in a sterilization facility. 14th EFCE Symposium on Loss Prevention and Safety Promotion in the Process Industries, Florence, Italy, May 2013.

Christiansen EW. Transformer fires and explosions. 7th Annual Wildland Fire Litigation Conference, Monterey, CA, April 2013.

Christiansen EW. Scientific methods for fire investigations. Guest Lecture for AA252: Techniques of Failure Analysis, Stanford University, April 2013 & 2014.

Christiansen EW. Investigation of an explosion in a polymer manufacturing plant. Guest Lecture for Ae150: Aerospace Engineering Seminar, California Institute of Technology, March 2013.

Jokar A, Christiansen EW. Condensation induced shock in thermal/fluid systems. ASME Heat Transfer/Fluids Engineering Summer Conference, HT2012:58117, Puerto Rico, USA, July 2012.

Christiansen EW, Carnahan R, Reza A, Qin W, Ross B. A case study of two shiploader fires in a coal and pet coke facility. 11th International Conference, Fire and Materials, San Francisco, CA, January 2007.

Christiansen EW, Reza A. A case study of a TFE explosion in a PTFE manufacturing facility. Proceedings, 40th Annual Loss Prevention Symposium, American Institute of Chemical Engineers, April 2006.

Christiansen EW, Reza A. Chemical analysis of fire debris. 2004 Summer Meeting of the California Conference of Arson Investigators, Seaside, CA, July 26-28, 2004.

Christiansen EW, Tse SD, Law CK. A computational study on oscillatory extinction of spherical diffusion flames. 39th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 2001.

Christiansen EW, Sung CJ, Law CK. Pulsating propagation and extinction of rich hydrogen/air flames at elevated pressures. 37th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 1999.

Christiansen EW, Sung CJ, Sun CJ, Law CK. Pulsating instability and flammability limits of one-dimensional planar flames with one-step chemistry and constant properties. Technical Meeting of the Eastern States Section of the Combustion Institute, Hartford, CT, October, 1997.

Appendix C

Schedule of Testimony of Erik Christiansen, Ph.D., P.E., C.F.I.

Erik W. Christiansen, Ph.D., P.E., C.F.I.
Principal Engineer

Deposition Experience (2015 – 2020)

July 27, 2015: Charles Li v Maria Cheng, et al., Superior Court of the State of California, County of Los Angeles, Case No. GC049724, Manhattan Beach, CA

August 17, 2015: Juan Gonzalez et al. v Wayne Bill Lew et al., Superior Court of the State of California, County of Los Angeles, Case No. KC064256, Irvine CA

May 10, 2016: California Department of Forestry and Fire Protection v Paradise Associates, Inc et al., Superior Court of the State of California, County of San Diego, Case No. 37-2014-00015780-CU-MC-CTL, Los Angeles CA

October 4, 2016: Pell Place Homeowners Association v D.R. Horton, Inc. et al., Arbitration No. 1240021539, San Diego CA

October 12, 2016: Safeco Insurance v San Diego Gas & Electric Company, Superior Court of the State of California, County of San Diego, Case No. 37-2014-00039587, San Diego CA

December 9, 2016: Carneros Vineyard Management, et al. v Kriegsman, et al., Superior Court of the State of California, County of Sonoma, Case No. SCV 255964, San Francisco, CA

March 7, 2017: Mireles v Phillips 66 et al., Superior Court of the State of California, County of Los Angeles – East District, Case No. BC 503381, Los Angeles, CA

July 6, 2018: United States of America v Kernan Construction et al., United States District Court, Eastern District of California, Case No. 2:17-CV-01424-WBS-CMK, Sacramento, CA

August 8, 2018: United States of America v Tarek M. Al-Shawaf et al., United States District Court, Central District of California, Case No. 16-CV-1539-ODW

July 2, 2019: Cernaka, et al. v. Russell No. 8 Santa Monica Properties, LLC, et al., Superior Court of California, County of Los Angeles, Case No. BC616624, Los Angeles, CA

Trial Experience (2015 – 2020)

September 21, 2015: Juan Gonzalez et al. v Wayne Bill Lew et al., Superior Court of the State of California, County of Los Angeles, Case No. KC064256, Los Angeles, CA

September 14 & 15, 2016: California Department of Forestry and Fire Protection v Paradise Associates, Inc et al., Superior Court of the State of California, County of San Diego, Case No. 37-2014-00015780-CU-MC-CTL, San Diego CA

February 1, 2017: Carneros Vineyard Management, et al. v Kriegsman, et al., Superior Court of the State of California, County of Sonoma, Case No. SCV 255964, Santa Rosa, CA

Arbitration

July 30, 2015: Coast RV Pty Ltd v Airxcel, Inc., Sydney, New South Wales, Australia

Appendix D

Rate Schedule for Erik Christiansen, Ph.D., P.E., C.F.I

Rate Schedule

Exponent is currently compensated at the rate of $465 per hour for Dr. Christiansen's time.